bintec elmeg
Teldat Group Company

Wi Fi CERTIFIED

WLAN ACCESS POINTS

Outdoor Access Point with two radio modules

bintec WI2065n

- WLAN according IEEE 802.11n, compatible with .11agbh
- With two radio modules, dual band radio
- Up to 4000mW transmission power in 5.8 GHz band allowed
- Operation as access point, bridge, WDS, client
- PoE or 24V DC; opt. with fibre optic WAN interface
- Protection class IP65, extended temperature range

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Outdoor Access Point with two radio modules

The W2065n is an outdoor (IP65) 11n access point with two dual-band radio modules. It can be used for a wide range of applications such as creating line-of-site radio links and can be mounted outdoors without any additional modifications.

Product description

- Prepared for mounting directly on the mast (a mast fixture is additionally required)
- Operation permissible with up to 4000 mW transmission power*
- VPN IPsec hardware encryption
- WAN optionally via Ethernet or optical fiber cable
- Operation as fat AP or as controller based AP via bintec WLAN controller

* Operation with 4000 mW EiRP is permissible in Germany and Great Britain in the 5.8 GHz band and requires registration or licensing from the regulatory authorities. It is possible to attain 4000 mW EiRP using the right antennas.

The bintec WIx065n series devices are industry-proof outdoor access points with protection class IP65, which are versatile in their use and can be installed outdoors without additional measures. According to the model, the devices are equipped with one or two IEEE 802.11agbn standard wireless modules. PHY rates of up to 300 Mbps per wireless module can be achieved as a result.

WIx065n as a high-performance bridgelink
The WI1065n is ideally suited for setting up high-performance line-of-sight radio links. Installation directly on the mast enables the use of very short, low-loss antenna cables thus improving the already very good performance of the devices. Using dual-polarized antennas, 11n technology allows separate data flows to be transmitted in parallel. Dual polarization antennas consist of two antenna segments, which are polarized orthogonally to each other. They, therefore, provide two cable connections. This means that the WI1065n transmits two separated partial streams from a to b, as defined by IEEE 802.11n. The data rate is more than tripled as compared with the previously applied technology. The combination of bintec WIx065n devices with bintec dual-polarization antennas allows net data rates of approx. 75 Mbps (TCP/IP) at a distance of 1000 m, for example.

As another highlight, besides the previous wireless frequencies in the 2.4 GHz and 5 GHz range, the bintec WIx065n series devices also support sub-band 3 in the 5 GHz range (5755-5825MHz). In Germany and Great Britain this frequency band is enabled for the operators of Internet services to operate BFWA (Broadband Fixed Wireless Access) applications with up to 4 Watt transmission power (EiRP). This considerably simplifies Internet connection of small communities without DSL for many professional Internet providers, but also community groups.

WIx065n outdoors to supply mobile subscribers
No matter whether you plan a wide area hotspot outdoors or have to provide WLAN for a large

outdoor storage facility, e.g. to connect your wireless hand scanners to your enterprise resource management system, the bintec WIx065n series devices will meet your requirements and help you overcome many obstacles.

When setting up a hotspot outdoors, the WIx65n devices integrate seamlessly into the bintec hotspot solution. If several access points are required to illuminate a site, e.g. a campsite or highway parking lot, the bintec WI2065n comes into use. This outdoor access point with two independent wireless modules can work simultaneously as an access point in the 2.4 GHz band for the hotspot guests and as a 5 GHz bridge for the wireless backbone.

Another field of application for the WIx065n access points is WLAN supply of large outdoor storage facilities for mobile subscribers, e.g. hand scanners. In this scenario, in conjunction with sound wireless cell planning, the IAPP protocol used by the WI devices ensures optimal roaming behavior of the terminal devices. The optional optical fiber WAN interface spans up to 2 km thus also allowing access points at remote parts of the plant site to also be operated.

Management
Here you have the choice between several solutions.

To configure individual devices you only need you Internet browser. The web server integrated in the device allows fast configuration and monitoring via the graphical user interface.

For larger installations, the complimentary DIME Manager assists in automatically finding unconfigured devices in the network and enables specific configuration of devices.

WLAN Controller

Optimize your WLAN network by using a bintec WLAN controller. The bintec WLAN controller allows configuration of your customers WLAN network in lesser than 30 minutes ... and this without deeper WLAN know-how! The automatic RF management system relieves you the time killing search for free WLAN channels and selects the best channels for the system.

For smaller WLAN networks up to 6 APs bintec access points (W1002n, WI series) are able to take over the function of the WLAN controller by themself and work as quasi master APs. For networks with more than 6 up to 72 APs you will need a bintec R1202 as WLAN controller hardware. You are able to manage bigger WLANs with up to 150 AP by using a bintec RXL12x00 as WLAN controller hardware.

Variants

bintec WI2065n (5010590014)	Ruggedized .11a/b/g/h/n WLAN Accesspoint/Bridge/Client dual radio, 4 RTNC antennas, 2xEth, 1xSFP, 1 x serial, 1 x relay, IP 65, power supply not included in delivery

Features

Operation Modes	
WLAN disabled	In this operation mode the device is a powerful 2-port VPN router
WLAN access point	WLAN access point with VPN router functionalities
WLAN bridge	Point-to-point and point-to-multipoint mode (up to 8 links)
WLAN client	Transparent client for direct connection of Ethernet devices

Wireless LAN	
WLAN standards	802.11n (Mimo 2x3); 802.11b; 802.11g; 802.11a; 802.11h
Frequency bands 2.4 GHz indoor/outdoor (EU)	2.4 GHz Indoor/Outdoor (2412-2472 MHz) max. 100 mW EiRP. This information is related to the permitted transmission power in Germany. The permitted transmission power may vary in other countries.
Frequency bands 5 GHz indoor (EU)	5 GHz indoor (5150-5350 MHz) max. 200 mW EiRP allowed. This information is related to the permitted transmission power in Germany. The permitted transmission power may vary in other countries.
Frequency bands 5 GHz outdoor (EU)	5 GHz outdoor (5470-5725 MHz) max. 1000 mW EiRP allowed. This information is related to the permitted transmission power in Germany. The permitted transmission power may vary in other countries.
Frequency bands 5.8 GHz BFWA (Germany)	5.8 GHz BFWA (5755-5875 MHz) max. 4000 mW EiRP allowed. This information is related to the permitted transmission power in Germany. For the usage in other countries, please contact the location regulation authorities.
WLAN modes	2.4 GHz operation: 802.11b only; 802.11g only, 802.11b/g/n mixed; 802.11b/g/n mixed long; 802.11b/g/b mixed short; 802.11b/g/n; 802.11g/n; 802.11n only; 5 GHz Operation: 802.11a only; 802.11a/n; 802.11n only
Automatic Rate Selection (ARS)	Available
Transmission rate	Automatic fallback or fixed transmission rate selectable
Data rates for 802.11b,g (2.4 GHz)	11, 5.5, 2 und 1 Mbps (DSSS modulation); 54, 48, 36, 24, 18, 12, 9 and 6 Mbps (OFDM modulation)
Data rates for 802.11a,h (5 GHz)	54, 48, 36, 24, 18, 12, 9 and 6 Mbps (OFDM modulation)
Data rates for 802.11n (2.4 / 5 GHz)	MSC0-15 enables physical rates up to 150 Mbps at 20 MHz channels bandwidth, 2 streams, short guard interval; MSC0-15 enables physical data rates up to 300 Mbps at 40 MHz channels bandwidth, 2 streams, short guard interval
Receiver Sensitivity @ 2.4 GHz 802.11b/g	1 Mbps -91 dBm; 2 Mbps -90 dBm; 5.5 Mbps -89 dBm; 11 Mbps -88 dBm; 6 Mbps -90 dBm;9 Mbps -89 dBm; 12 Mbps -88 dBm; 18 Mbps -86 dBm; 24 Mbps -83 dBm; 36 Mbps -80 dBm; 48 Mbps -76 dBm; 54 Mbps -74 dBm
Receiver Sensitivity @ 2.4 GHz 802.11n 20 MHz	MSC0 -89 dBm; MSC1 -87 dBm; MCS2 -85 dBm; MCS3 -82 dBm; MCS4 -79 dBm; MSC5 -75 dBm; MCS6 -73 dBm; MCS7 -70 dBm; MCS8 -83 dBm; MCS9 -84 dBm; MCS10 -81 dBm; MCS11 -79 dBm; MCS12 -80 dBm; MCS13 -72 dBm; MCS14 -68 dBm; MCS15 -67 dBm
Receiver Sensitivity @ 2.4 GHz 802.11n 40 MHz	MSC0 -87 dBm; MSC1 -84 dBm; MCS2 -82 dBm; MCS3 -79 dBm; MCS4 -75 dBm; MSC5 -71 dBm; MCS6 -69 dBm; MCS7 -67 dBm; MCS8 -86 dBm; MCS9 -83 dBm; MCS10 -79 dBm; MCS11 -77 dBm; MCS12 -74 dBm; MCS13 -69 dBm; MCS14 -67 dBm; MCS15 -65 dBm

Wireless LAN

Receiver Sensitivity @ 5 GHz 802.11a/h	6 Mbps -88 dBm; 9 Mbps -87 dBm; 12 Mbps -86 dBm; 18 Mbps -84 dBm; 24 Mbps -82 dBm; 36 Mbps -78 dBm; 48 Mbps -74 dBm; 54 Mbps -73 dBm
Receiver Sensitivity @ 5 GHz 802.11n 20 MHz	MSC0 -88 dBm; MSC1 -85 dBm; MCS2 -83 dBm; MCS3 -81 dBm; MCS4 -78 dBm; MSC5 -74 dBm; MCS6 -72 dBm; MCS7 -70 dBm; MCS8 -88 dBm; MCS9 -85 dBm; MCS10 -83 dBm; MCS11 -80 dBm; MCS12 -77 dBm; MCS13 -72 dBm; MCS14 -70 dBm; MCS15 -68 dBm
Receiver Sensitivity @ 5 GHz 802.11n 40 MHz	MSC0 -84 dBm; MSC1 -82 dBm; MCS2 -79 dBm; MCS3 -77 dBm; MCS4 -74 dBm; MSC5 -69 dBm; MCS6 -67 dBm; MCS7 -66 dBm; MCS8 -83 dBm; MCS9 -82 dBm; MCS10 -79 dBm; MCS11 -76 dBm; MCS12 -72 dBm; MCS13 -68 dBm; MCS14 -66 dBm; MCS15 -64 dBm
Output power (without antenna gain)	Adjustable in following steps: 5, 8,11,14,16 und 17.5 dBm. Maximal power varies depending on data rate and frequency band.
Tx Power @ 2.4 GHz 802.11b/g	1 Mbps 16 dBm; 2 Mbps 16 dBm; 5.5 Mbps 16 dBm; 11 Mbps 16 dBm; 6 Mbps 17,5 dBm; 9 Mbps 17,5 dBm; 12 Mbps 17 dBm; 18 Mbps 17 dBm; 24 Mbps 15 dBm; 36 Mbps 15 dBm; 48 Mbps 13 dBm; 54 Mbps 13 dBm
Tx Power @ 2.4 GHz 802.11n 20 MHz/40 MHz	MSC0 17.5 dBm; MSC1 17,5 dBm; MCS2 17 dBm; MCS3 17 dBm; MCS4 15 dBm; MSC5 15 dBm; MCS6 13 dBm; MCS7 13 dBm; MCS8 17.5 dBm; MCS9 17.5 dBm; MCS10 17 dBm; MCS11 17 dBm; MCS12 15 dBm; MCS13 15 dBm; MCS14 13 dBm; MCS15 13 dBm
Tx Power @ 5 GHz 802.11b/g	1 Mbps 16 dBm; 2 Mbps 16 dBm; 5.5 Mbps 16 dBm; 11 Mbps 16 dBm; 6 Mbps 17.5 dBm; 9 Mbps 17.5 dBm; 12 Mbps 17 dBm; 18 Mbps 17 dBm; 24 Mbps 15 dBm; 36 Mbps 15 dBm; 48 Mbps 13 dBm; 54 Mbps 13 dBm
Tx Power @ 5 GHz 802.11n 20 MHz/40 MHz	MSC0 17.5 dBm; MSC1 17.5 dBm; MCS2 17 dBm; MCS3 17 dBm; MCS4 15 dBm; MSC5 15 dBm; MCS6 13 dBm; MCS7 13 dBm; MCS8 17.5 dBm; MCS9 17.5 dBm; MCS10 17 dBm; MCS11 17 dBm; MCS12 15 dBm; MCS13 15 dBm; MCS14 13 dBm; MCS15 13 dBm
Number of spatial streams (802.11n)	1 or 2
Bandwidth (802.11n)	20/40 MHz (bundling of two adjoining 20 MHz channels to one 40 MHz channel)
Short guard interval (802.11n)	On/off switchable; increase of throughput by reduction of the guard intervals from 800ns to 400ns
DTIM Period	Adjustable
Multi SSID	Depending on the complexity of configuration up to 8 service sets per radio module, with virtual access points and own MAC address per SSID.
Broadcast SSID	On/off switchable
Clients (Pwr. Managmt./max number)	Registering of up to 250 clients per radio module simultaneously in access point mode. Default value is 32 clients.
Country-specific settings	Channel settings according regulatory domain (802.11d) permitted.
TPC	TPC (transmission power control): For 5 GHz, automatic reduction of transmission power according EN301893
DFS	DFS (dynamic frequency selection): For 2.4 and 5 GHz, channels are dynamically used depending on operating grade. DFS is implemented in bridge links master and slave.
RTS/CTS	RTS/CTS threshold adjustable

Security

Security

Encryption WEP/WPA	WEP64 (40 Bit key), WEP128 (104 Bit key), WPA personal, WPA enterprise, WPA2 personal, WPA2 enterprise
IEEE802.11i authentication and encryption	802.1x/EAP-MD5, 802.1x/EAP-TLS, 802.1x/EAP-TTLS, 802.1x/EAP-PEAP, key management, PSK/TKIP encryption, AES encryption, 802.1x/EAP
Access control list (ACL)	MAC address filter for WLAN clients
VLAN	Network segments on layer2 possible. Per SSID one VLAN ID available. Static VLAN configuration according IEEE 802.1q; up to 32 VLANs supported.
Inter cell repeating	Inter traffic blocking for public hot spot (PHS) applications for preventing of communication radio client to radio client in a single radio cell.
NAT/PAT	Network & Port Address Translation / Stateful Packet Inspection: Isolation of complete network from public access
VPN - IPSec	10 tunnels inclusive, 100 more via separate license
VPN - IPSec	Powerful encryption up to 256 bits (AES, 3DES, DES, CAST, Blowfish, Twofish)
VPN - IPSec DPD	Dead Peer Detection for IPSec tunnels
VPN - PPTP	Integrated
VPN - PPTP	Strong encryption up to 128 bits (MPPE), up to 168 bits (DES/3DES, Blowfish)
DynDNS / DynVPN	Router can still be reached over the Internet in spite of dyn. IP address
IKE for IPSec	Pre-Shared Keys and X.509 certificate support
X.509	X.509 v1/v3 certificates (PKCS#7/8/10, 12, CLRs, SCEP)
QoS for IPSec	Available
PKI Support for IPSec	Available
NAT Traversal for IPSec	Available
IPCOMP	IP compression
IPSec / RADIUS	Available
IPSec redesign	Policy manager and interface concept
L2TP	Layer 2 tunnelling protocol for ATM, Ethernet, PPP; user authentication
GRE	V.0 according RFC 2784 for common encapsulation
Hardware encryption	3DES, AES and RC4

Software

Roaming (access point mode)	Seamless roaming with IAPP (artem Inter Access Point Protocol)
Fast roaming 802.1x (access point mode)	Pre authentication and PMK caching allows fast roaming by 802.1x encryption
Roaming behaviour (client mode)	Adjustable (no, slow, normal, fast, customized roaming). Adaptable for fast movable client (i.e. vehicle), to guarantee a roaming without interruption. This is achieved by scanning of the relevant channels in the background.
WDS	Wireless Distribution System: Include high security TKIP and AES, interoperable with W1002n, WIx40, WIx65n, RS120wu, RS232aw, RS232bw and RS232jw

Software

Bridge: point-to-point / point-to-multipoint	Point-to-point connection between two access points, point-to-multipoint connection between up to eight partners access points
Bridge	Full remote configuration: Protocol with encrypted transmission. RTS/CTS threshold adjustable. Operating channels: According to the regulatory domain. Transmit speed: Auto fallback or selectable fixed rate.
Bridge link test	Via the link test the quality of a bridge link can be measured.
Bridge link encryption	With high security TKIP and AES possible
Client mode	Routing or bridge mode possible. In bridge mode multiple IP based end devices can be operated simultaneously and additionally one non-IP-based end device
Buffer pool	For cushioning of peaks
WMM 802.11e QoS	Data prioritization for TOS data, 802.11e/WMM
WMM Power Save (U-APSD)	Support of active WLAN clients, which support 802.11e power save
Internet dialup	PPPoE, PPTP
Load balancing	Session-round-robin, load-dependent bandwidth
BLD	Broken Link Detection (BLD) per SSID possible.
NTP	NTP client, NTP server, manually
DNS	DNS client, DNS server, DNS relay
DHCP	DHCP client, DHCP server, DHPC relay

Maintenance

Configuration a. maintenance: Device configuration via	Telnet, SSH, HTTP, HTTPS, SNMP
Configuration a. maintenance: SNMP	SNMP (v1, v2, v3), USM model, VACM views, SNMP traps (v1, v2, v3) configurable, SNMP IP access list configurable
Configuration a. maintenance: SNMP configuration	Complete management with MIB-II, MIB 802.11, enterprise MIB
Configuration a. maintenance: SSH Login	Supports SSH V1.5 and SSH V2.0, for secure connections of terminal applications
Configuration a. maintenance: HTTP/HTTPS	Web-based configuration (FCI). The user interface is identical with almost all bintec elmeg products.
Configuration a. maintenance: Secure configuration	SSH available, HTTPS, Telnet protected against 'bruce force attacks'
Configuration a. maintenance: Configuration export and import	Load and save of configurations; save configuration optionally encrypted; optional, automatic controlled via scheduler
Configuration a. maintenance: On the fly configuration	No restart is required after the configuration has been changed.
Configuration a. maintenance: Software update	Software updates free of charge; loadable via file, HTTP or via direct access to the bintec elmeg server; optional, automatic controlled via scheduler
External reporting: Syslog	Syslog client, with different levels of messaging.

Maintenance

External reporting: eMail alert	Automatic eMail alert by definable events
External reporting: SNMP traps	Supported
External reporting: Activity monitor	Sending of information to a PC on which Brickware is installed
Monitoring: Internal Log	Output via web-based configuration interface (http/https); filter: subsystem, level, message
Monitoring: IPSec	Displayed: IPSec tunnels and IPSec statistics; output via web-based configuration interface (http/https)
Monitoring: Interfaces	Statistic information of all physical and logical interfaces (ETH0, ETH1, SSIDx, ...)
Monitoring: WLAN	Detailed displays for radio, VSS, WDS link, bridge links, client links. Displayed are per link: MAC address, IP address, TX packets, RX packets, signal strength for every receiving aerial, signal-to-noise ratio, data rate
Monitoring: Configurable scheduler	Following events can be scheduled: Reboot device, activate/deactivate interface, activate/deactivate WLAN, initiate 5 GHz band scan, trigger SW update, trigger configuration backup
Management: Supported management systems	bintec WLAN Controller, DIME Manager, XAdmin
Management: Discovery function	Protocols: Madge Discovery Protocol (MDP), bintec elmeg discovery protocol (ADP), works also across subnets
Management: Discovery Protocol	CAPWAP DHCP option according RFC1517
Documentation	German and English documentation on CD and in the Internet for download
Guarantee	2-year manufacturer's guarantee, Online RMA handling

Hardware

Certifications	Wi-Fi Certified according 802.11abgn (Rel.7.9.4)
Standards and certifications	R&TTE Directive 1999/5/EG; EN 60950-1 (IEC60950); EN 60950-22; EN 301489-1; EN301489-17; EN 55022; EN 300328-1; EN 301893; EN 302502; EN 50371
Wifi Certification	Wifi Certified product according IEEE 802.11abgn under preparation
LAN / WAN	2 x 10/100 Mbps Ethernet twisted pair, autosensing, auto MDI/MDI-X
Optical WAN/LAN Interface	SFP slot for 100 Mbps Fibre Transceiver. Only one ETH interface is activated, if SFP module is plugged
Serielle Schnittstelle	V.24 interface with D-Sub9 jack for configuration
WAN	IEEE 802.11a/b/g/n; 2 radio module, 2.4 und 5 GHz band, 4 external antennas
Antenna	Four antenna connectors with RTNC jacks; delivered incl. four 2 dBi omni-directional antennas
Temperature Sensor	Temperature supervision and software controlled interaction. Controlling of the radio module heading at temperature below -10°C.
Alarm relay	Controlled by software i.e. for alarm, overtemperature, undertemperature; 1A 42V AC / 2A 30V DC
Real time clock	Even at power loss the system time will be available for several hours.

Hardware	
Power supply	Power requirements: 24V +/-30% max. 1 A; Operation with two redundant power supplies supported; Operation is indepent of the Polarity of the power supply; Power supply unit is not include in the delivery
PoE	Power-over-Ethernet according IEEE 802.3af
Status LEDs	Status + activity for WLAN, Ethernet 1, Ethernet 2; SFP, Failure
Montage	Wall mounting include; Mast mounting as an option available
Theft protection	Theft protection optional available
Protection class	IP65 protected for outdoor usage
Dimensions	260mm x 56mm x 256mm (width x height x depth)
Weight	Approx. 1800g
Environment	Temperature operating: -25°C to +65°C; storage: -40°C to 85°C; rel. humidity 10 to 95% (non condensing)

Accessoires

Industry Products	
bintec WI-Client (5510000169)	WLAN Client adaptor for industrial applications, IEEE802.11a/b/g/h, 1 x ETH, RS232 data interface. 2 ext. RSMA antenna sockets, WPA, WPA2, 802.1x, 2 x standard omni antennas, DIN-Rail and wall mounting

WLAN Controller	
WI-License WLAN Contr. 6AP (5500000942)	WI series license WLAN Controller for 6 AP

Pick-up Service / Warranty Extension	
Service Package 'large' (5500000811)	Warranty extension of 3 years to a total of 5 years, including advanced replacement for Teldat products of the category 'large'. Please find a detailed description as well as an overview of the categories on www.teldat.de/servicepackages.

Antennas, Cables and Adapters	
Module SFP-100 (5510000163)	SFP-100 Module Fiber extension for WI-Series; multimode, extended temperature range

Add-ons	
Ascom i62 VoWiFi Basic Talker (5530000044)	i62 VoWifi telephone, 802.11abgn, battery included, 18 months warranty
Theft Protection WI-65 Series (5020591600)	Anti-Theft Protection and Wall Mounting Kit for WI-65 Series APs

Add-ons

Pole Mounting WI-65 Series (5020591700)	Pole Mounting Kit for WI-65 Series APs